

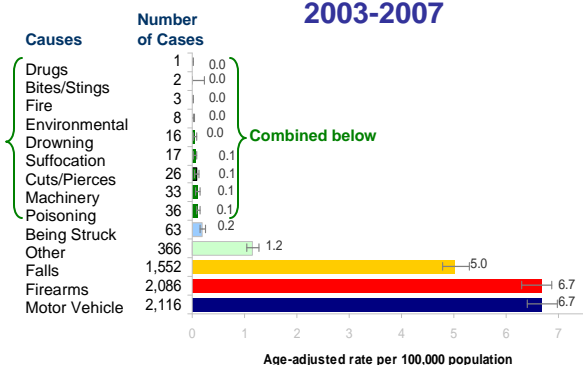
Immediate Causes of Traumatic Brain Injury (TBI) Deaths¹ and Hospitalizations^{2, 3}

Overview

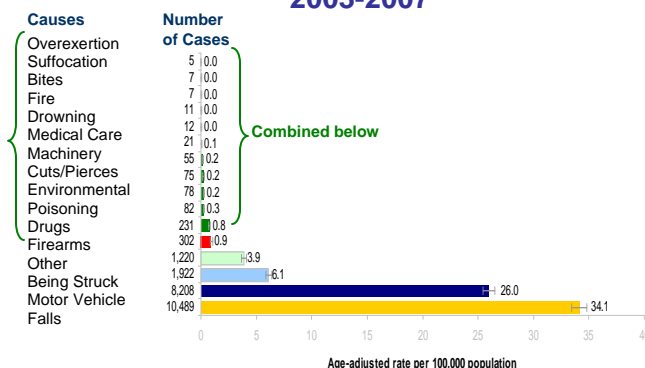
1. TBIs due to falls and motor vehicle-related injuries are among the top three causes of both hospitalizations and deaths. Prevention activities targeting these mechanisms will probably reduce TBI rates significantly.
2. Relatively high rates of TBI deaths due to firearms, but not high rates of hospitalizations, suggest that these injuries are the deadliest.
3. Males and rural residents have a higher risk of TBI deaths and hospitalizations than females and urban residents.
4. Over the last nine years, TBI deaths and hospitalizations due to falls have risen while other mechanisms have either remained constant or declined slightly.

What are the major causes of TBI ?

Causes of TBI Deaths 2003-2007



Causes of TBI Related Hospitalizations 2003-2007

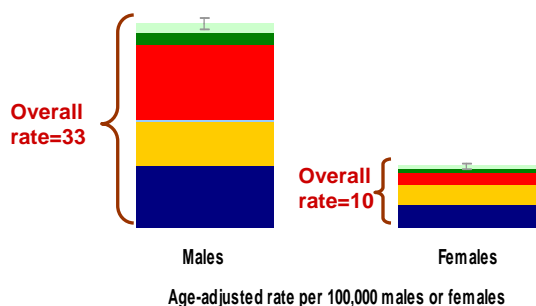


From 2003-2007, falls, firearms, and motor vehicle-related injuries were the major causes of TBI deaths. Overall, these top three constituted nearly 91% of all TBI deaths.

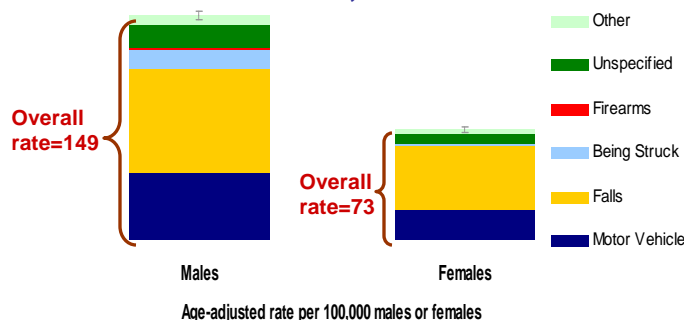
From 2003-2007, falls, being struck by an object, and motor vehicle related TBI injuries made about 90% of all TBI related hospitalizations. While firearms were the second leading cause of TBI deaths, only a small fraction of those with firearm injuries were hospitalized.

Are there differences in the way in which TBI occurs in males and females?

Causes of TBI Deaths by Gender 2003-2007



Causes of TBI Related Hospitalizations by Gender, 2003-2007

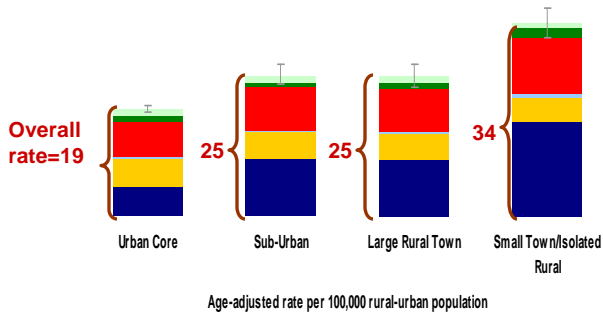


From 2003-2007, males had three times higher risk for TBI deaths than females had. For males, firearms were the major cause followed by motor vehicle injuries and falls. For females, motor vehicle injuries and falls were equally important.

From 2003-2007, TBI hospitalizations, similar to TBI deaths, were higher for males than females. For both genders, falls were the major cause of hospitalizations followed by motor vehicle-related injuries.

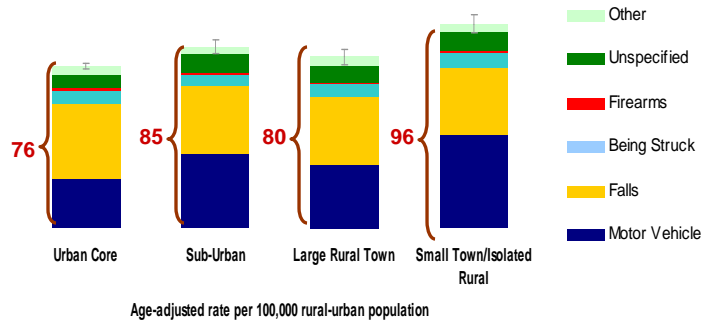
Do the causes of TBI differ between rural and urban areas?

Causes of TBI Deaths by RUCA Codes, 2003-2007



From 2003-2007, the risk of TBI deaths increased as one goes further away from the urban core areas. In urban core, firearms caused the majority of TBI deaths. Outside of urban centers, motor vehicle-related injuries were the deadliest cause of TBIs.

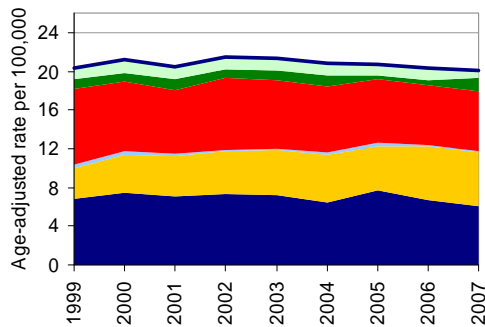
Causes of TBI Related Hospitalizations by RUCA Codes, 2003-2007



From 2003-2007, small towns and isolated rural areas had the highest rate of TBI hospitalizations. While falls were the number one cause of hospitalizations in urban core and large rural towns, motor vehicle-related accidents were the leading cause of TBI hospitalizations in sub-urban and small town and isolated rural areas.

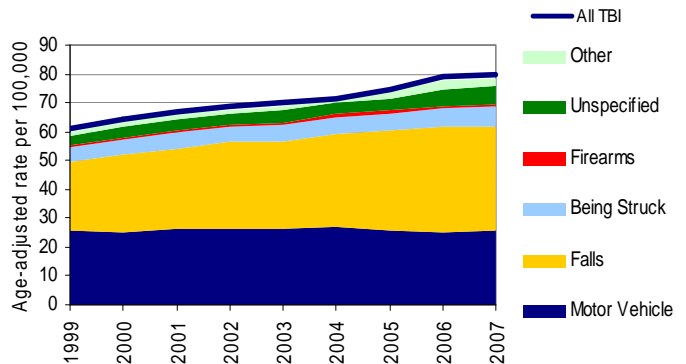
Was there a change in the causes of TBI over time?

Time Trends of Causes of TBI Deaths, 1999-2007



From 1999 to 2007, there was no significant trend for Washington's TBI deaths. During this period, deaths due to firearms slightly declined from about 8 to about 6 per 100,000 population. In contrast, TBI deaths due to falls rose significantly from about 3 to about 6 per 100,000 population.

Time Trends of Causes of TBI Related Hospitalizations, 1999-2007



From 1999 to 2007, TBI hospitalizations rose from about 61 to about 80 per 100,000 population. While TBI hospitalizations due to all other causes had no significant change during the same time period, TBI hospitalizations due to falls rose steadily from about 24 to about 36 per 100,000 population. They explain the overall rise in TBI hospitalizations.

Endnotes

- Washington State Death Certificate Data: Washington State Department of Health, Vital Registration System Annual Statistical Files, Deaths 1999-2007 (2008 Release).
- Washington hospitalization data: Dataset compiled for Washington residents by the Washington State Department of Health, Center for Health Statistics from the Washington Comprehensive Hospital Abstract Reporting System (1999-2007), Oregon Hospital Discharge data (1999-2007), and Veterans Hospital Administration (VA) datasets (2000-2007). Time trend data are for Washington and Oregon; data in other charts are for Washington, Oregon, and VA facilities (2008 Release).
- TBI related hospitalizations for 1999-2007 include the following ICD-9-CM codes: 800.0-801.9, 803.0-804.9, 850.0-854.1, 950.1-950.3, 959.01, and 995.55. TBI deaths for 1999-2007, the ICD 10 codes include S01.0-S01.9, S02.0-S02.1, S02.3, S02.7-S02.9, S06.0-S06.9, S07.0-S07.1, S07.8-S07.9, S09.7-S09.9, T01.0, T02.0, T04.0, T06.0, T90.1 - T90.2, T90.4-T90.5, or T90.8-T90.9 in any of the multiple cause fields.